



National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Opening Remarks on AIRS Validation

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AIRS Science Team Meeting
May 3-6, 2005



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Some Validation Accomplishments by many people

- **Radiances with aircraft instruments.**
- **Microwave and infrared forward models using in situ observations.**
- **Extensive comparisons with ECMWF.**
- **Total ozone against TOMS and sondes.**
- **Temperature and humidity with dedicated sondes.**
- **Comparisons with 10,000+ operational sondes.**
- **Comparisons with other A-Train observations.**
- **Long-term trending of radiances against RTG.SST.**
- **AWEX reconciliation of in situ upper trop humidity observations.**

These are all being published in
**Journal of Geophysical Research-Atmospheres Special
Section on AIRS Validation.**



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Congratulation to authors who have submitted their papers to the JGR Special Section on AIRS Validation!

1. H. H. Aumann and D.T. Gregorich: *Radiometric Calibration Validation of AIRS for Climate Applications*
2. F. W. Chen and D. H. Staelin: *Validation of Aqua AIRS/AMSU/HSB Precipitation Estimates*
3. M. Divakarla, M. Goldberg, C. Barnet, and M. Divakarla: *Three-Way Comparisons of AIRS, ATOVS and Radiosonde Temperature and Moisture Profiles*
4. L. M. Miloshevich, H. Voemel, D. N. Whiteman, B. M. Lesht, and F. J. Schmidlin: *Accuracy and Performance Assessment for Six Operational Radiosonde Types Launched During AWEX, and Implications for AIRS Validation*
5. L. McMillin, James G. Yoe, Seth I. Gutman, Jiang Zhao, M. K. Rama Varma Raja: *Validation of AIRS water vapor retrievals based on radiosondes and GPS receivers*
6. N. R. Nalli and P. Clemente-Colon, P. Minnett, M. Szczerba, A. Jessup, R. Branch, V. Morris, M. Goldberg, C. Barnet, W. Wolf, E. Joseph, W. Feltz, and R. Knuteson: *Infrared and microwave sensor validation during AEROSE 2004*
7. P. Rosenkranz and C. Barnet: *Microwave Radiative Transfer Model Validation*
8. P. Rosenkranz *AIRS/AMSU/HSB Cloud Liquid Water Profile Retrieval Algorithm and Validation*
9. L. Strow, S. Hannon, S. De Souza-Machado, D. Tobin: *Validation of Version 4 AIRS Radiative Transfer Algorithm*
10. D. C. Tobin, H. E. Revercomb, C. Moeller, T. S. Pagano: *Comparison of Infrared Radiance Observations from AIRS, MODIS, and CERES on EOS Aqua*
11. D. C. Tobin, H. E. Revercomb, R. O. Knuteson, W. F. Feltz, B. Lesht, T. Cress, L. L. Strow, S. E. Hannon, E. J. Fetzer: *ARM Site Atmospheric State Best Estimates for AIRS Forward Model and Retrieval Validation*
12. D. C. Tobin, H. E. Revercomb, R. O. Knuteson, F. A. Best, W. L. Smith, P. van Delst, D. D. LaPorte, S. D. Ellington, M. W. Werner, R. G. Dedecker, R. K. Garcia, N. N. Ciganovich, H. B. Howell, S. Dutcher, J. K. Taylor, T. S. Pagano, M. D. King and S. A. Mango: *Radiometric and Spectral Validation of AIRS Observations with the Aircraft based Scanning High resolution Interferometer Sounder*



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Everyone else keep up the good work and submit soon:

1. E. J. Fetzer, H. H. Aumann, M. T. Chahine, A. Eldering and B. Lambrigtsen: *Comparison of Total Water Estimates from AIRS and AMSR-E*
2. E. J. Fetzer and M. T. Chahine: *Overview of AIRS Water Vapor Validation*
3. E. J. Fetzer and W. W. McMillan: *Introduction to AIRS Validation*
4. E. Fishbein, H. Aumann, M. Chahine, L. Chen: *Error Characterization and Properties of Cloud-Cleared Radiances Estimated from AIRS Radiances*
5. B. Kahn and co-authors: *Cloud Top Pressure Validation with In Situ and Satellite Obs.*
6. S. Gaiser and L. Strow: *Spectral Calibration of AIRS for Climate Applications*
7. W. W. McMillan, R. Hoff, K. Lightner, M. L. McCourt, E. Maddy, N. Kolb, K. McCann, J. Comer, F. Russo, E. Hintsa, M. Newchurch, C. K. Rutledge, L. L. Strow: *Overview of the AIRS BBAERI Ocean Validation Experiment and AIRS Profile Retrieval Validation*
8. M. Newchurch and F. W Irion: *AIRS Ozone Validation*
9. W. L. Smith, TBD, D. K. Zhou, A.M. Larar, and Xu Liu, P. Antonnelli, D. Tobin, R. O. Knuteson, and H. E. Revercomb, and S. Mango: *Airborne NAST and Dropsonde Validation of AIRS Vertical Sounding Capabilities*
10. J. Susskind, J. Blaisdell, E. Dadson, L. Iredell, F. Keita, L. Kourvaris, and G. Molnar: *Validation of Inter-annual Monthly Mean Difference of AIRS products*
11. M. Szczdorak, P. J. Minnett, N. R. Nalli and W. F. Feltz: *Measurements of temperature and humidity profiles over the ocean: comparisons of AIRS retrievals with ship-based remote sensing, in situ measurements and ECMWF analysis*
12. V.P. Walden, W.R. Roth, R.S. Stone, and B. Halter: *The use of the Antarctic Plateau as a validation site for the Atmospheric Infrared Sounder (AIRS)*
13. D. N. Whiteman, B. Demoz, F. Schmidlin, L. Miloshevich, B. Lesht, H. Vömel, Z. Wang, I. Veselovskii, F. Russo, S. Hannon: *The AIRS Water Vapor Experiment and its Relationship to AIRS Validation*
14. Others...



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AIRS Validation: What we can expect in the coming year?

- Dedicated and operational sondes as ‘gold standard’ for AIRS T and q.
 - Or is it the other way around?
- Clouds related to temperature and humidity.
- Trace gases
 - Ozone
 - Troposphere and polar night
 - CO₂, CO, CH₄, SO₂
- Extensive comparisons with A-Train geophysical quantities
 - AMSR-E water vapor, SST and cloud ice / liquid water.
 - TES ozone, water vapor and trace gases
 - MLS upper tropospheric water vapor and clouds
 - MODIS cloud properties and water vapor

These will help establish a climate-quality
data record from AIRS



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*Thanks to everyone for their hard
(and good) work.*